

L4 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2004:555744 CAPLUS
DN 141:340745
TI Unusual thickness-dependent thermal behavior in chiral smectic
free-standing liquid-crystal films
AU Chao, C. Y.; Lo, C. R.; Liu, Y. H.; Link, D. R.; MacLennan, J. E.; Clark,
N. A.; Veum, M.; Huang, C. C.; Ho, J. T.
CS Department of Physics and Astronomy, National Central University,
Chung-Li, 32054, Taiwan
SO Molecular Crystals and Liquid Crystals (2004), 412, 2003-2010
CODEN: MCLCD8; ISSN: 1542-1406
PB Taylor & Francis, Inc.
DT Journal
LA English
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:43947 CAPLUS
DN 138:213125
TI Novel thickness-dependent thermal behavior and anticlinic coupling in
chiral smectic free-standing liquid-crystal films
AU Wu, Pin-Jiun; Chao, Chih-Yu; Lo, Chien-Rong; Veum, Michael; Link, Darren
R.; MacLennan, Joseph E.; Clark, Noel A.
CS Department of Physics and Astronomy, National Central University,
Chung-Li, 32054, Taiwan
SO Ferroelectrics (2002), 277, 197-206
CODEN: FEROA8; ISSN: 0015-0193
PB Taylor & Francis Ltd.
DT Journal
LA English
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:883500 CAPLUS
DN 138:210708
TI Nonplanar structure of molecular tilt planes in the surface layers of
smectic-A free-standing liquid crystal films
AU Han, X. F.; Olson, D. A.; Cady, A.; Link, D. R.; Clark, N. A.; Huang, C.
C.
CS School of Physics and Astronomy, University of Minnesota, Minneapolis, MN,
55455, USA
SO Physical Review E: Statistical, Nonlinear, and Soft Matter Physics (2002),
66(4-1), 040701/1-040701/4
CODEN: PRESCM
PB American Physical Society
DT Journal
LA English
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:399159 CAPLUS
DN 137:177483
TI Electro-optic characteristics of de Vries tilted smectic liquid crystals:
Analog behavior in the smectic A* and smectic C* phases
AU Clark, N. A.; Bellini, T.; Shao, R.-F.; Coleman, D.; Bardou, S.; Link, D.
R.; MacLennan, J. E.; Chen, X.-H.; Wand, M. D.; Walba, D. M.; Rudquist,
P.; Lagerwall, S. T.
CS Department of Physics, and Ferroelectric Liquid Crystal Materials Research
Centre, University of Colorado, Boulder, CO, 80309, USA
SO Applied Physics Letters (2002), 80(22), 4097-4099
CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics
DT Journal
LA English

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:172022 CAPLUS

DN 136:224305

TI Partially fluorinated liquid crystal material

IN Wand, Michael; Gough, Neil; Chen, Xin Hua

PA Displaytech, Inc., USA

SO PCT Int. Appl., 91 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | WO 2002018514 | A1 | 20020307 | WO 2001-US27182 | 20010831 |
| | W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| | US 2003017278 | A1 | 20030123 | US 2001-854181 | 20010511 |
| | AU 2001085364 | A5 | 20020313 | AU 2001-85364 | 20010831 |
| PRAI | US 2000-229892P | P | 20000901 | | |
| | US 2001-854181 | A | 20010511 | | |
| | WO 2001-US27182 | W | 20010831 | | |

OS MARPAT 136:224305

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:305417 CAPLUS

DN 135:84565

TI Unusual Thickness-Dependent Thermal Behavior and Anticlinic Coupling in Chiral Smectic Free-Standing Liquid-Crystal Films

AU Chao, C. Y.; Lo, C. R.; Wu, P. J.; Liu, Y. H.; Link, D. R.; MacLennan, J. E.; Clark, N. A.; Veum, M.; Huang, C. C.; Ho, J. T.

CS Department of Physics and Astronomy, National Central University, Chung-Li, 32054, Taiwan

SO Physical Review Letters (2001), 86(18), 4048-4051

CODEN: PRLTAO; ISSN: 0031-9007

PB American Physical Society

DT Journal

LA English

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L4 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

IT 347192-53-4

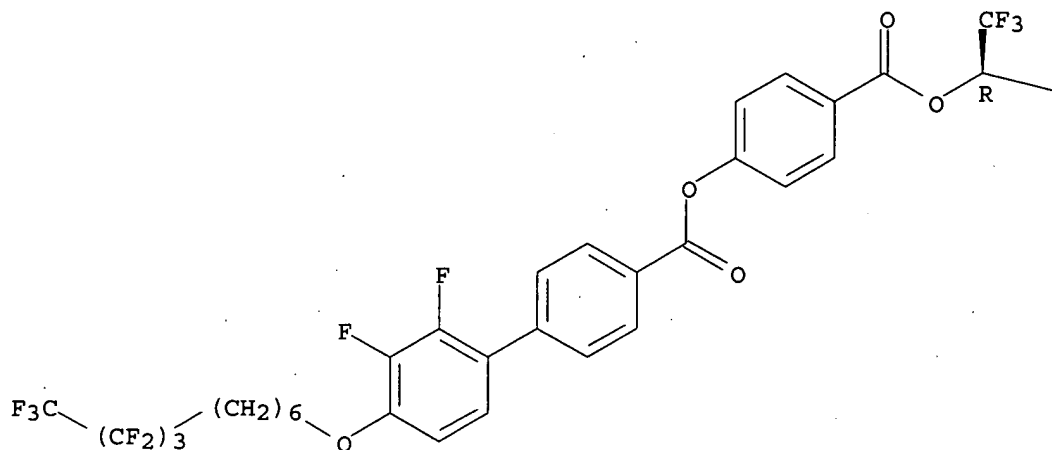
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)

(unusual thickness-dependent thermal behavior and anticlinic coupling in chiral smectic free-standing liquid-crystal films)

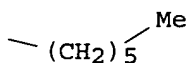
RN 347192-53-4 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-
 [(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-
 (trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



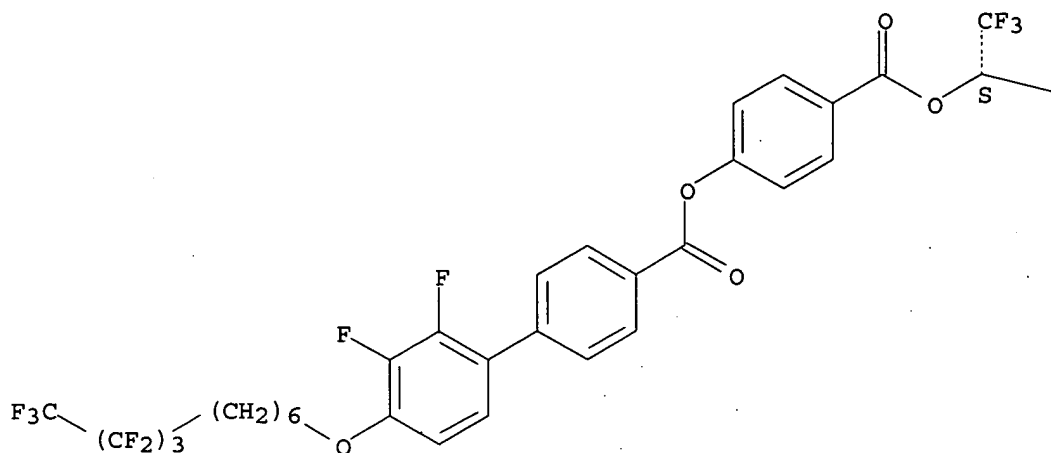
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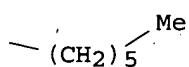
L4 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 IT 402860-25-7
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP
 (Physical process); PROC (Process)
 (novel thickness-dependent thermal behavior and anticlinic coupling in
 chiral smectic free-standing liquid-crystal films of)
 RN 402860-25-7 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-
 [(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1S)-1-
 (trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



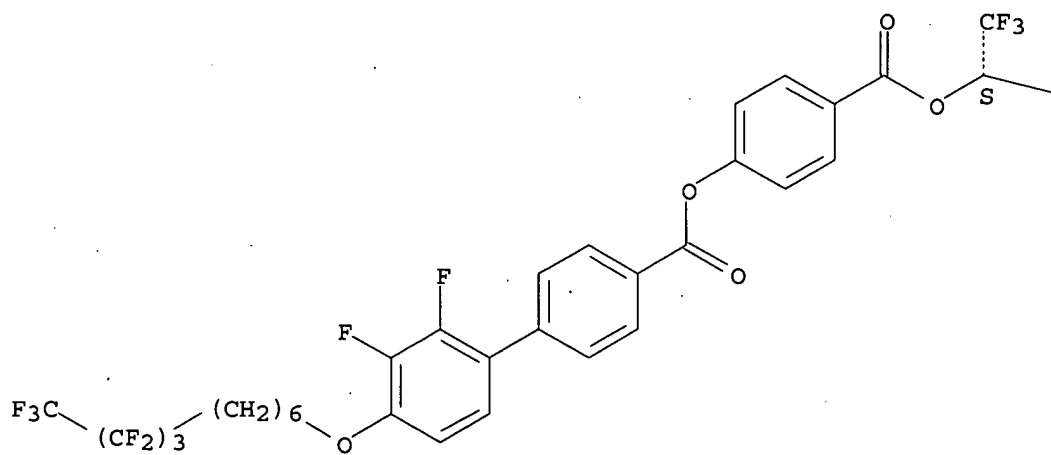
PAGE 1-B

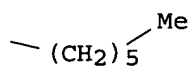


L4 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 IT 402860-25-7
 RL: PRP (Properties)
 (nonplanar structure of mol. tilt planes in surface layers of smectic-A
 free-standing liquid crystal films)
 RN 402860-25-7 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-
 [(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1S)-1-
 (trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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L4 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

IT 347192-53-4 402860-12-2

RL: PRP (Properties)

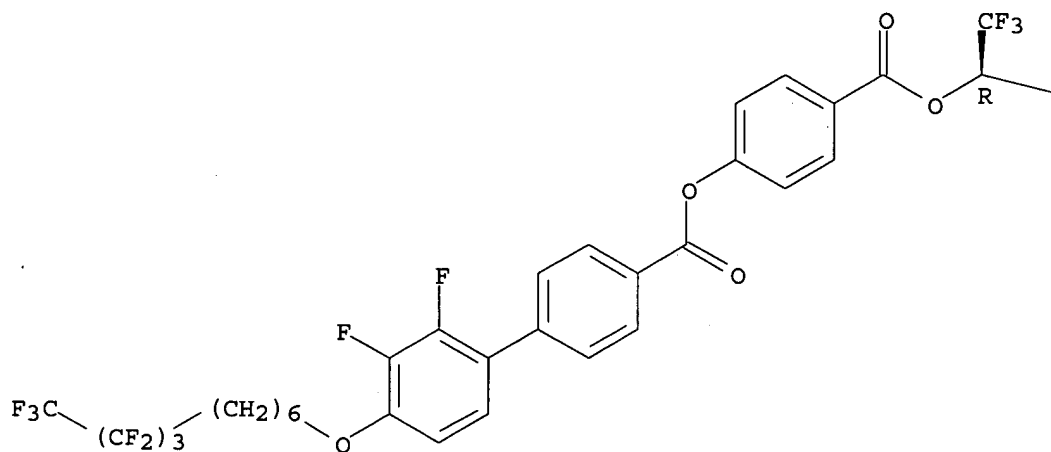
(electro-optic characteristics of de Vries tilted smectic liquid crystals: analog behavior in smectic A* and smectic C* phases)

RN 347192-53-4 CAPLUS

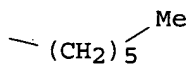
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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PAGE 1-B

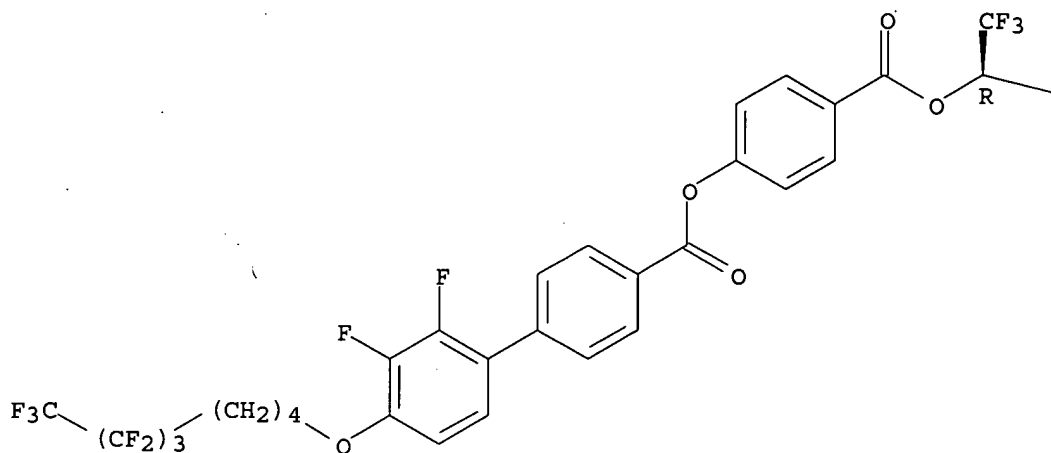


RN 402860-12-2 CAPLUS

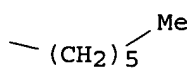
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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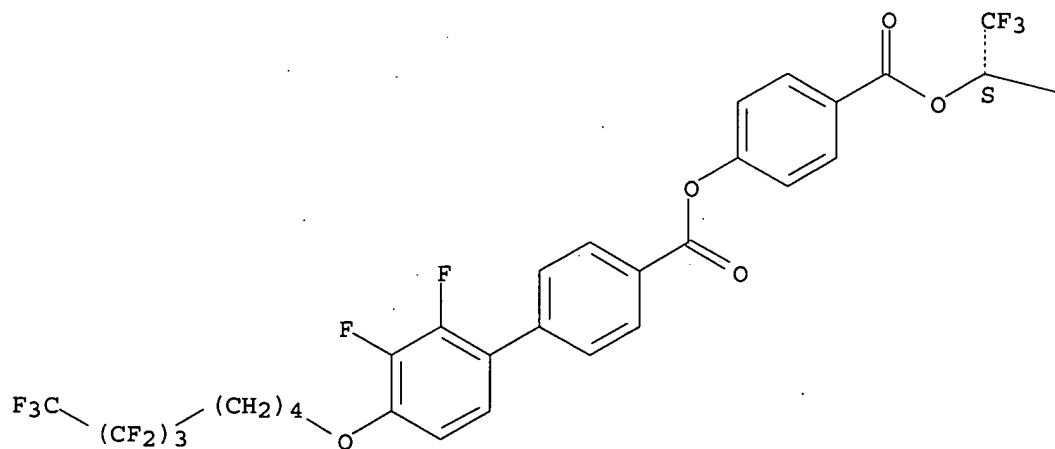
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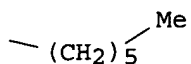


L4 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 IT 402860-24-6 402860-25-7
 RL: DEV (Device component use); USES (Uses)
 (partially fluorinated liquid crystal material for liquid crystal display).
 RN 402860-24-6 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-, 4-[[[(1S)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

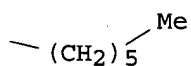
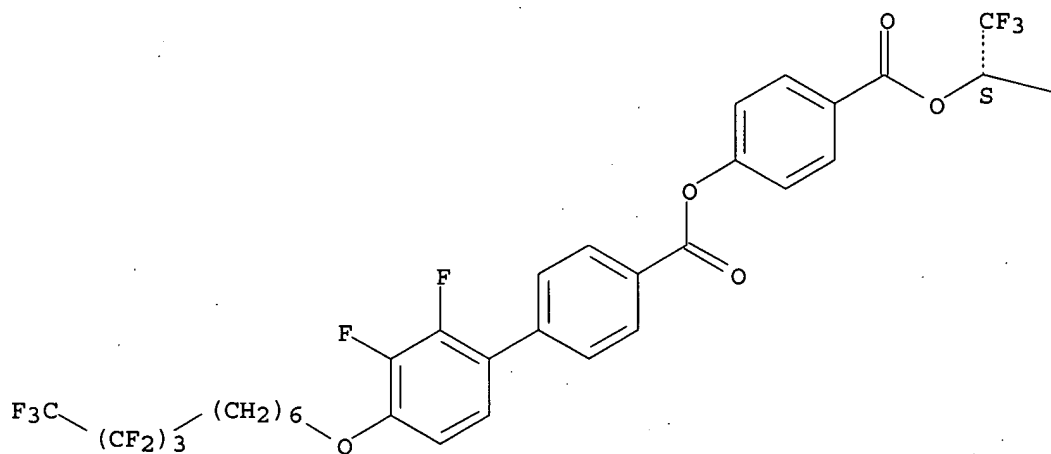
PAGE 1-A





RN 402860-25-7 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-
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 (trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

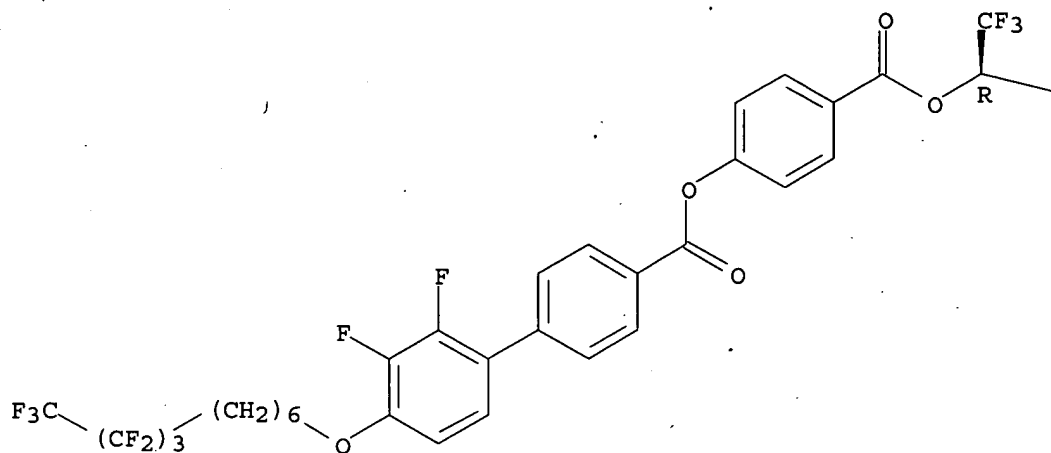
Absolute stereochemistry.



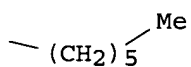
IT 347192-53-4P 402860-12-2P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (partially fluorinated liquid crystal material for liquid crystal display)
 RN 347192-53-4 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-
 [(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-
 (trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

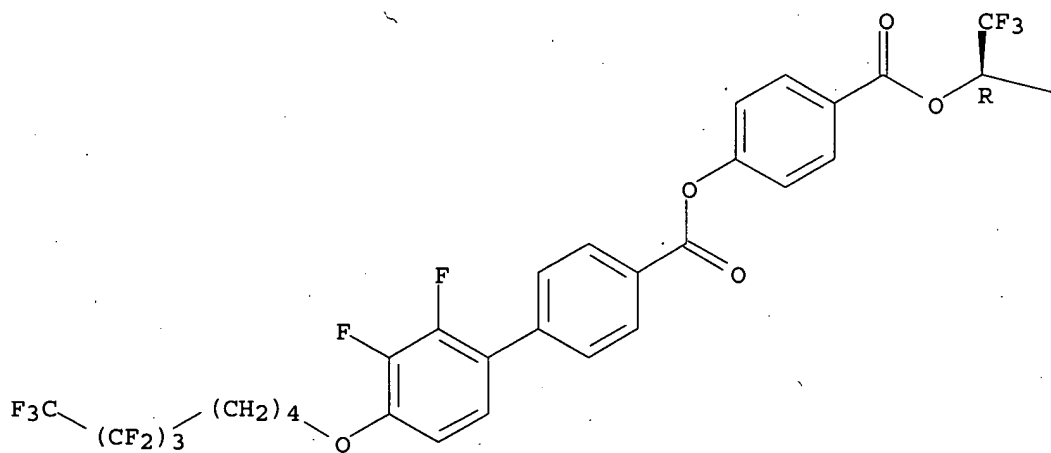


RN 402860-12-2 CAPLUS

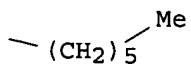
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



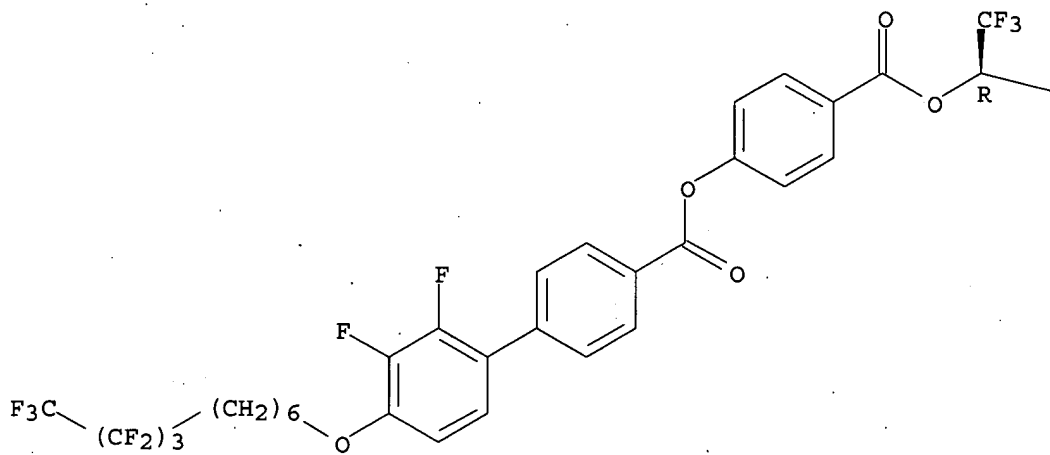
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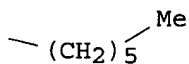
L4 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 IT 347192-53-4
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)
 (unusual thickness-dependent thermal behavior and anticlinic coupling
 in chiral smectic free-standing liquid-crystal films)
 RN 347192-53-4 CAPLUS
 CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-
 [(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-
 (trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

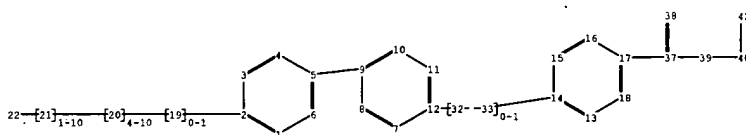
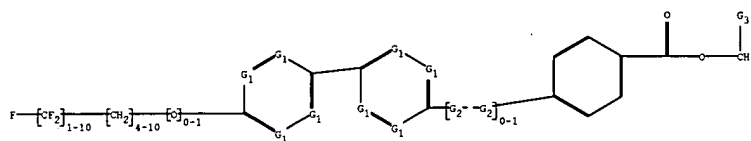
Absolute stereochemistry.

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chain nodes :

19 20 21 22 32 33 37 38 39 40 42

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

chain bonds :

2-19 5-9 12-32 14-33 17-37 19-20 20-21 21-22 32-33 37-38 37-39
39-40 40-42

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14
13-18 14-15 15-16 16-17 17-18

exact/norm bonds :

1-2 1-6 2-3 2-19 3-4 4-5 5-6 5-9 7-8 7-12 8-9 9-10 10-11 11-12
12-32 14-33 17-37 19-20 20-21 21-22 32-33 37-38 37-39 39-40 40-42

normalized bonds :

13-14 13-18 14-15 15-16 16-17 17-18

G1:C,N

G2:C,O

G3:CH3,CF2,CF3

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom
18:Atom 19:CLASS 20:CLASS 21:CLASS 22:CLASS 32:Atom 33:Atom 37:CLASS
38:CLASS 39:CLASS 40:CLASS 42:CLASS